

REMARKS

By this amendment, no claims have been amended, canceled, or added. Claims 24-38 are pending in the application. Applicants reserve the right to pursue the original claims and other claims in this and other applications.

Claims 24-25, 29, and 32 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,656,330 ("Niiyama"). This rejection is respectfully traversed.

Claim 24 recites, *inter alia*, "exposing at least a portion of said at least one current emitter to a hydrogenation process comprising plasma enhanced chemical vapor deposition process conducted in the presence of a silane gas in a reaction chamber." Niiyama does not disclose this feature. To the contrary, Niiyama discloses "a method for production of a hydrogenated amorphous silicon film...using the plasma CVD apparatus." (column 4, lines 30-35). Niiyama discloses that a "starting gas material" is "decomposed, leading to deposition of the decomposed starting gas material on the substrate 10" (column 4, lines 36-53) to form a "resistive layer 102" (column 6, lines 1-12; FIG. 4, no. 102). Therefore, Niiyama does not teach "exposing...a...current emitter to a hydrogenation process" as recited by claim 24, but instead only teaches forming a resistive layer 102 using a deposition process. Claims 32, 33, and 37 contain similar limitations and are allowable for similar reasons.

Furthermore, Applicant respectfully submits that the Office Action has mischaracterized the resistive layer 102 as an "electrode". (Office Action, page 2). Niiyama makes it clear that element "made of the hydrogenated amorphous silicon film" is a "resistive layer 102 arranged between the cathode conductive layer 101 [an electrode] and the emitter 105." (column 6, lines 2-32).

Claim 25 recites, *inter alia*, “wherein said nitrogen infusion process is conducted in said reaction chamber following said plasma enhanced chemical vapor deposition process.” Niiyama does not disclose this feature. To the contrary, Niiyama discloses that “in the resistive sputtering, nitrogen bearing gas may be added to the starting gas material in the course of deposition of the hydrogenated amorphous film” or “may be incorporated, by ion implantation.” (column 6, line 66 – column 7, line 5). Therefore, Niiyama does not teach that a “nitrogen infusion process is conducted in a reaction chamber following...plasma enhanced chemical vapor deposition process” as recited by claim 25, but instead teaches implanting a nitrogen bearing gas into a film formed by resistive sputtering. Niiyama does not even teach that the implantation occurs in the same chamber as the resistive sputtering.

Claim 32 recites, *inter alia*, “treating the tips of the current emitters of said field emission device with plasma enhanced chemical vapor deposition hydrogenation in the presence of silane gas in a chamber.” Niiyama does not disclose this feature. To the contrary, as discussed above with respect to claim 24, Niiyama only teaches forming a resistive layer 102 using a deposition process. Furthermore, Applicant respectfully submits that the Office Action has mischaracterized the resistive layer 102 shown in FIG. 4 as having a “corner” that may be interpreted as a “tip.” (Office Action, page 2). FIG. 4 depicts a “field emission cathode of a field emission type fluorescent display device.” (column 5, lines 61-62). As part of a display device, the field emission cathode shown in FIG. 4 is situated adjacent to a plurality of other field emission cathodes. Therefore, the “corner” of the resistive layer 102 is only shown in FIG. 4 due to the cut-away view for convenience, and is not an actual element of the field emission cathode. Claim 37 contains similar limitations and is allowable for similar reasons.

Since Niiyama does not disclose all the limitations of claims 24 and 32, these claims are not anticipated by Niiyama. Claims 25-31 depend from claim 24 and are

patentable at least for the reasons mentioned above. Applicant respectfully requests that the rejection of claims 24-32 be withdrawn.

Claims 26-28 and 32-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Niiyama in view of U.S. Patent No. 5,902,650 ("Feng"). This rejection is respectfully traversed.

The Office Action fails to establish a *prima facie* case of obviousness at least because Niiyama in view of Feng, even if properly combinable, do not teach or suggest every element of independent claims 33 and 37. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As discussed above, claims 33 and 37 contain similar limitations to claims 24 and 32 and are allowable at least for similar reasons. Furthermore, Feng does not cure the deficiencies of Niiyama. Similarly to Niiyama, Feng only teaches that a "device 50 is formed by depositing a resistive layer 52 of amorphous silicon based film on a glass substrate." (column 5, lines 31-33). Therefore, Niiyama in view of Feng, even if properly combinable, do not teach or suggest all the claim limitations of claims 33 and 37.

Since Niiyama and Feng do not disclose all the limitations of claims 33 and 37, these claims are not anticipated by Niiyama. Claims 34-36 depend from claim 33 and are patentable at least for the reasons mentioned above. Claim 38 depends from claim 37 and is patentable at least for the reasons mentioned above. Applicant respectfully requests that the rejection of claims 33-38 be withdrawn.

In view of the above remarks, Applicant believes the pending application is in condition for allowance.

Dated: October 27, 2006

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

David T. Beck

Registration No.: 54,985

DICKSTEIN SHAPIRO LLP

1825 Eye Street, NW

Washington, DC 20006-5403

(202) 420-2200

Attorney for Applicant